

Claims

1. Method to transmit an information service in a broadcast transmission system, **characterized by** the following steps:
 - performing a fragmentation within each of categories representing said information service to create data fragments,
 - adding signalling information to every data fragment, which signalling information allows a consistent reassembly of said data fragments at a receiver on basis of predefined protocol rules, to create respective broadcast objects, and
 - transmitting said broadcast objects in an order according to an information content of said data fragment within said broadcast object.
2. Method according to claim 1, **characterized in that** said fragmentation is performed dependent on the information content of the data to be transmitted.
3. Method according to claim 1, **characterized in that** a broadcast object is classified in dependency on the information content of the data fragment carried within a broadcast object, and a repetition rate of transmitting a broadcast object is dependent on its type.
4. Method according to claim 1, **characterized in that** said information service comprises a structure with three layers, namely
 - service which provides information considered useful for a user when choosing a service among several others;
 - category which links several items; and
 - item which carries the information the user is interested in.
5. Method according to claim 1, **characterized in that** said fragmentation divides a category horizontally in at least two groups by building groups of item attributes of items of said category according to an importance of said item attributes.
6. Method according to claim 5, **characterized in that** four groups of item attributes are build, namely:

- a core attributes group which covers a set of the most important attributes, which should be available in a terminal first on average;
- a dynamic attributes group which are likely to change with a higher frequency than other attributes;
- a main attributes group which covers all remaining item attributes; and
- a referenced attributes group which consists of attributes belonging to one of the other three attribute groups which are included therein as reference only and to be transmitted separately, e. g. because they comprise a high amount of data.

7. Method according to claim 1, **characterized in that** said fragmentation divides at least parts of a category vertically by building groups of items of said category according to a logical membership of said items.

8. Method according to claim 7, **characterized in that** two types of broadcast objects are defined, namely:

- item subset directory containing information about all items which are transmitted in a predefined format; and
- item subset containing item data of a predefined format.

9. Method according to claim 6, **characterized in that** six types of broadcast objects are defined, namely:

- service directory containing elementary information about a service;
- category directory containing a complete list of all categories within a service;
- item directory containing all core attributes of all items of a category;
- item dynamic data list containing the dynamic attributes of at least a group of items;
- item main data list containing the main attributes of at least a group of items; and
- referenced attributes containing one referenced attribute of one item.

10. Method according to claim 9, **characterized in that** the signalling information of a service directory broadcast object comprises a protocol version attribute to enable a receiving terminal to check protocol compatibility between the broadcast service and a processing unit in the terminal.

11. Method according to claim 1, **characterized in that** the signalling information of a broadcast object comprises a type attribute indicating a classification of said broadcast object, and/or an ID attribute to distinguish several broadcast objects of a same type of broadcast objects, and/or a version attribute to indicate a change of a certain broadcast object.

12. Method according to claim 11, **characterized in that** a reference to a referenced attribute comprises the ID of the broadcast object carrying the referenced attribute and a version attribute of the referenced broadcast object.

13. Method according to claim 12, **characterized in that** in case of an update of a referenced attribute the version attribute of the referenced attribute object and the version of the attribute reference change, or the reference changes by exchanging the identifier and using the version information of the newly referenced attribute.

14. Method according to claim 6, **characterized in that** the item core attributes group, the item main attributes group and the item dynamic attributes group each comprise an own version attribute which indicates an information update whenever an item attribute value or an item attribute cardinality of the respective item attributes group changes.

15. Method according to claim 14, **characterized in that** a broadcast object comprising an item of the item core attributes group and of the item directory carries all three version attributes, a broadcast object comprising an item of the item main attributes group carries a main version attribute, and a broadcast object comprising an item of the item dynamic attributes group carries a dynamic version attribute.

16. Method according to claim 9, **characterized in that** the item directory comprises a version attribute which indicates an update whenever an item set comprising all core attributes of all items of a category changes or the vertical fragmentation changes.

17. Method according to claim 9, **characterized in that** the item main data list and the item dynamic data list respectively comprise a version attribute which indicates an update whenever a respective item subset comprising the respective main or dynamic attributes of at least a group of items changes or the vertical fragmentation changes.

18. Method according to claim 9, **characterized in that** the category directory comprises a version attribute which indicates an update whenever a category directory attribute value or a category attribute cardinality changes.

19. Method according to claim 9, **characterized in that** the category directory comprises a version attribute which indicates an update whenever a category set comprising a complete list of all categories within a service changes.

20. Method according to claim 9, **characterized in that** the service directory comprises a version attribute which indicates an update whenever the protocol version attribute or a service attribute changes.

21. Method according to claim 1, **characterized in that** the signalling information of a broadcast object carrying a fragment of a category comprises a category ID attribute which specifies uniquely an information category and attributes which allow the defragmentation of the category.

22. Method according to claim 1, **characterized in that** said broadcast transmission system is DAB.

23. Method to receive an information service in a broadcast transmission system, **characterized by** the following steps:

- receiving broadcast objects;
- extracting signalling information and a data fragment of every received broadcast object, which signalling information allows a consistent reassembly of said data fragments into an information category of said information service on basis of predefined protocol rules; and
- performing a defragmentation within each of categories representing said information service to create said information service.

24. Method according to claim 23, **characterized in that** said defragmentation is performed dependent on the information content of the data to be transmitted.

25. A receiver to receive an information service in a broadcast transmission system, comprising:

- means for receiving broadcast objects;
- means for extracting signalling information and a data fragment of every received broadcast object, which signalling information allows a consistent reassembly of said data fragments into an information category of said information service on basis of predefined protocol rules; and
- means for performing a defragmentation within each of categories representing said information service to create said information service.